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ABSTRACT

This note examines motivations and consequences of a widely held generative phonological analysis of the Modern French vowel system. This analysis claims that only three degrees of vowel height are distinctive in Modern French. It is argued that the analysis would be improved by adding an additional degree of vowel height, creating a system which meets the minimum requirements of observational adequacy and phonetic realism. (Author/AM)

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A NOTE ON THE FRENCH VOWEL SYSTEM

Douglas C. Walker

This note will explore certain motivations and consequences of a widely held generative phonological analysis of the Modern French (MF) vowel system -- that proposed in Schane, French Phonology and Morphology[1] (FPM). One of the innovations in the FPM analysis is the claim that only three degrees of vowel height are distinctive in MF. Thus, the underlying vowel system[2] is characterized as follows (FPM: 21):

(1)

+high -low	i		u
-high -low	e		o
-high +low	ɛ	a	ɔ
	-back -round	+back -round	+back +round

Although there is a certain amount of internal motivation for this three height classification, the choice is also dictated by the phonological theory within which FPM was written, essentially that of The Sound Pattern of English. Given two binary features [high] and [low] plus the impossibility of the combination [+high, +low], three heights are all that the distinctive feature theory permits the vowel system of a language to have. Moreover, because only a single feature for tongue position on the anterior-posterior plane is used, there are only front and back, but no central, vowels on the underlying level. While these limitations may be well motivated on the basis of

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other languages, they have serious consequences for the treatment of French under consideration. It is to these interactions between theory and somewhat intractable data that we now turn. The point of departure will be the contrast between the FPM system of (1) and more traditional analyses where the oppositions relevant to this discussion are usually characterized as follows (Malmberg 1969: 27):

(2)

	front	back
high	i	u
higher mid	e	o
lower mid	ɛ	ɔ
low	a	ɑ

The obvious point to emphasize is that a feature system with three tongue heights and two positions on the front-back plane is incapable of distinguishing all of the vowels of (2) in any natural and non ad hoc manner. In a system with only three degrees of height, the vowels / ɛaɑɔ/, as the lowest vowels in the system, are all specified [+low].[3] Since a fifth, front rounded low vowel /œ/ must be distinguished in derived representations, and since the maximum number of low vowels that can be distinguished with the remaining features [back] and [round] is four, one of the low vowels must be omitted. This accounts for the absence of /ɑ/ from underlying (and largely from derived) representations in FPM.

Now it is certainly the case that there exist analyses of MF in which the phoneme /ɑ/ is absent from the vowel system. Is this omission thereby justified in FPM? It does not appear so, for the following reason. The "additional" low vowel /ɑ/ is not distinctive in certain innovative or informal dialects.[4] Yet it is not these dialects that are described in FPM, but rather a more formal, orthoepic system in which the /a - ɑ/ opposition is maintained. The fact that FPM is dealing with a formal dialect is clear from several of the analytic positions adopted:

(3) (a) The opposition /œ̃ - ɛ̃/ exists (in standard French) only in conservative styles or among the older generation. This opposition is included in FPM.

(b) Schwa is included in many representations where it never shows up on the phonetic surface except in very formal styles (poetry, formal recitation, and so on). Much of the justification for schaw in FPM, in other words, comes from formal registers.

(c) Although there is often not a full-fledged opposition between /e - ɛ/ and the other mid vowel pairs /ø - œ/, /o - ɔ/, particularly in informal speech, the FPM decision is to "nonetheless represent the high mid and low mid vowels differently in the phonetic (derived) representations..." (FPM: 19).

(d) The nature of the data upon which many of the phonological alternations are posited involves learned, rare, or morphologically complex items (cf. FPM: 20, 46-47, etc.), all of which are more characteristic of formal styles.

In all of these important areas, then, although there is the possibility of restricting the analysis to an informal level, the FPM position is to include the formal variants. It is a considerable contradiction, therefore, when one of the orthoepically important distinctions, that between /a/ and /ɑ/, is omitted. It is reasonably clear that the omission was dictated by the nature of the distinctive feature system used, rather than by empirical considerations.

Granted, then, that the distinctions /a - ɑ/ merits attention in the conservative dialect described in FPM, how should it be approached? Within the same three height feature system, two possibilities suggest themselves. In several of the words that consistently have /ɑ/, there exist morphologically related forms with /s/ following the /ɑ/: bas - basse, las - lasse - lassitude, pas - trépasser, pâte - pastel, mâle - masculin, âne - asinien, and so on. It would be possible to set up underlying representations containing the sequence /...as.../ for these forms, and to derive surface [ɑ] by means of lexically restricted deletion and quality modification rules (suggestions to this effect may be found on FPM: 55). While this solution works for the forms cited, in order to

account for all instances of /ɑ/ it would force the introduction of underlying /s/ in the significantly larger set of items where there is no related form motivating it (âge, vase, phase, théâtre, paille, canaille, etc.). In cases where there is free variation between forms with /a/ and forms with /ɑ/ (i.e. in the suffixes -able, -ation), this variation must be indirectly represented in terms of an /a/ - /as/ alternation, a counter-intuitive result. These considerations seriously weaken any proposal to account for /ɑ/ by positing an underlying sequence /...as.../.

An alternative manner of marking the /a - ɑ/ distinction would be to consider the feature [long] as pertinent, with quality differences predicted from length. Since /a/ is usually short and front, and /ɑ/ long and back,[5] they could be distinguished as /a/ and /a:/ respectively. This has the advantage of linking this opposition to another marginal distinction in MF, that between /ɛ/ and /ɛ:/ (mettre - maître, tette - tête, faites - fête, and so on). The major problem with this proposal is the existence of a considerable number of pairs where the length distinction is absent (in stressed open syllables), but where the quality distinction is maintained: ma - mât, la - las, ta - tas, patte - pâte, and so on. The feature [long] is of no help here. It appears that the sole recourse, if the standard formal dialect is to be analysed, is to accept four degrees of height in the vowel system. How is this to be accomplished?

One solution, remaining within the standard generative phonological paradigm,[6] has been proposed by Kiparsky (1968: 185-188). In studying a set of German dialects, Kiparsky noted the need to distinguish four distinctive degrees of tongue height, and proposed the following classification:

(4)

	æ	ɛ	e	i
high	–	–	+	+
mid	–	+	+	–

This system is obviously adaptable to the MF system in the following way:

(5)

+high -mid	i		u
+high +mid	e		o
-high +mid	ɛ		ɔ
-high -mid	a	ɑ	
	-back -round	+back -round	+back +round

The advantages of such a system are evident.[7] First, it meets the minimum requirements of observational adequacy and phonetic realism. Moreover, it groups the mid vowel pairs /e - ɛ, ø - œ, o - ɔ/ together as a natural class of mid vowels, which was not done in the old feature system. This is a welcome result given the well known neutralization of these pairs in various contexts. In grouping the vowels this way, the system gives some indication of the dynamics of the MF phonological system. Kiparsky has speculated that vowel systems with four degrees of height are inherently instable, and should tend to reduce to three degrees.[8] This is what is happening in various syntagmatic positions in the formal dialect of FPM (in pretonic and in closed syllables), and in other social or regional dialects (the Midi has no contrast between the higher mid and lower mid vowels). In any case, whatever the particular modification adopted, it is clear that the FPM analysis could be improved by adding an additional degree of vowel height, and that the dialect of French considered in that work provides additional motivation for some such modification of distinctive feature theory.[9]

FOOTNOTES

[1]Schane, S.A. French Phonology and Morphology, Cambridge, Mass.: MIT Press, 1968.

[2]This system differs in many respects from a standard phonemic analysis of MF, notably in the absence of front rounded and nasal vowels, both of which are derived by morphophonemic rule. The FPM underlying system also includes a distinction between tense and lax variants of all vowels, which is omitted as not directly relevant to the question at hand.

[3]An additional reason for grouping /a/ and /ɔ/ together as low vowels is that they both undergo a rule of vowel fronting, and should therefore form a natural class. The rule upon which this claim is based is not uncontroversial, however.

[4]However, there are other dialects, notably Canadian French, where the opposition is still functional.

[5]That is, in those pairs where there is a phonemic difference between /a/ and /ɑ/, /ɑ/ is long. In the several positions of neutralization, there may be occurrences of short /ɑ/ (in final open syllables), or long /a/ (preceding a "consone allongeante").

[6]This paradigm specifies the use of binary distinctive features. An alternative proposal using an n-ary feature of tongue height with four different degrees (for this case) will not be pursued here. For an alternative proposal using the feature [tense], see Brunet (1972).

[7]There are also some unsatisfactory aspects, such as specifying /e/ as a high vowel; lacking a direct specification of low vowels despite their unmarked character (at least for /a/); and the arbitrary choice of features used ([low] and [mid], or [high] and [raised], among others, would also work). Many of these questions will no doubt be clarified by further work on markedness theory. Note, however, that these difficulties can be avoided by adopting an n-ary analysis of vowel height.

[8]This claim may require refinement. I have

argued (Walker, forthcoming) that a four degree system of vowel height is necessary for a certain stage of Old French. If this system is continued into MF, a distinction that has persisted for 800 years can hardly be called "instable".

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